



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/555,440

11/03/2005

Yoshio Mitani

1272-0121PUS1

4240

2292 7590 01/10/2008
BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

LIAO, DIANA J

ART UNIT

PAPER NUMBER

4116

NOTIFICATION DATE

DELIVERY MODE

01/10/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/555,440	Applicant(s) MITANI ET AL.	
	Examiner DIANA J. LIAO	Art Unit 4116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 4-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/3/2005, 2/3/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 4-7 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 12/10/2007.
2. Applicant's election without traverse of group I, claims 1-3 in the reply filed on 12/10/2007 is acknowledged.
3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Priority

4. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 2003-127846 (JP), filed on 5/6/2003.

Information Disclosure Statement

5. The information disclosure statement (IDS) submitted on 11/3/2005 and 2/3/2006 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Status of Application

6. Claims 1-3 are presented for examination. Claims 4-7 have been withdrawn due to being the non-elected invention.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term “ppm” is not a conventional way to describe the size distribution of a powder. In claim 2, particles of not smaller than 45 μm is said to be “not larger than 200 ppm”. Since ppm is usually used for concentrations, this can mean that the particles larger than 45 μm constitute no larger than 200 ppm of the whole sample. However, given the discrete nature of particles and the fact that ppm is a dimensionless unit, the way the claim is phrased it can also be taken to mean that no more than 200 particles

per million particles. These two values are not equivalent and further clarification is required.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konya, et al. (US 2003/0103890).

Konya, et al. teaches a hydrophobic silica powder treated with a hydrophobizing agent, such as a dimer diol siloxane or cyclic siloxane, with a bulk density of 100-300 g/L, a primary particle diameter of 10-120nm, and a degree of hydrophobization of 40-80. (abstract) This degree of hydrophobization is determined through methanol titration, which is equivalent to the M-value described in the instant application. Example 3 in Konya, et al. also teaches a dispersion test using decamethylcyclopentasiloxane in

Art Unit: 4116

which the silica is suspended for at least a week with no settling, indicating good dispersion. (paragraph 23) Konya, et al. teaches an overlapping range for bulk density, M-value, a size distribution with most particles smaller than 45 μm , and good dispersion.

Konya, et al. differs from the instant application because it does not teach the exact M-value range, bulk density range, or an n-value. Konya, et al. is also silent regarding nitrogen and metal impurities and being specifically treated with cyclic dimethylsiloxane.

However, silica with those properties would be obvious to one of ordinary skill in the art.

Regarding treatment with cyclic dimethylsiloxane, Konya, et al. teaches the use of a cyclic siloxane as a hydrophobizing agent. Dimethylsiloxane is a simple cyclic siloxane, and therefore an obvious choice. In addition, the dimer siloxanes contain R groups that are selected from a group containing methyl and trimethylsiloxy groups. (paragraph 23) Therefore, it would be obvious to one of ordinary skill in the art to use cyclic dimethylsiloxane. Furthermore, the limitation that the silica is treated with such a siloxane is a product-by-process type limitation. The process portion, the treatment, is not given patentable weight unless there is a clear physical result of the choice in process step. In this case, the choice of siloxane is not a patentable aspect as there is no evidence that it yields a different product from one of another known siloxane.

Regarding the M-value range, Konya, et al. teaches a value of 40-80, which encompasses the range of the instant application. The ranges are not significantly different, and are both imposed for the same reasons of easy handling and good

Art Unit: 4116

dispersion. (abstract) Konya, et al. also discloses examples with M-values falling within the range of the instant application. (paragraph 24 and 26) Without significant reason and explanation for use of the claimed range of M-values, the range of claim 1 is not found patentable over the prior art.

Regarding the bulk density values, Konya, et al. teaches an overlapping range with the instant application. Bulk density can be easily changed through mechanical means as demonstrated by Konya, et al. The raw materials used in the examples disclosed in Konya, et al. start at lower bulk densities in the range of 40-80 g/L and are brought by way of several steps to their final bulk density. For example, Example 1 starts with a powder with a bulk density of 45 g/L and it is raised to 170 g/L and 190 g/L over the course of its processing. (paragraph 21) It is inherent that during this process a product of a bulk density of the instant claims was made. It would be obvious to one of ordinary skill in the art to achieve a bulk density of 80-130 g/L by shortening the steps in Konya, et al. that make the powder finer. There are other examples that start out at 80 g/L, for example, or are not processed at all to increase bulk density. (paragraphs 23 and 26) In addition, one would be motivated to create a product with a lower bulk density if the original value from the raw materials were high enough. Since Konya, et al. discloses a silica with a starting bulk density of 80 g/L and also discloses an example that skips the extra pulverizing step, it would be obvious to avoid extra processing time, cost, and machinery in making a hydrophobic silica by not processing it to raise density at all if the bulk density were already within a usable range.

Regarding n-values, Konya, et al. is silent about n-values. However, since n-values are a measure of dispersability as explained in the instant application, and good dispersability is a goal of taught in Konya, et al., there is good reason to believe that a high n-value is inherent in products produced in Konya, et al. Example 3 undergoes a dispersion test where some of the silica is suspended in decamethylcyclopentasiloxane and it stays suspended for over a week. This shows very good dispersability and stability. Therefore, the range of n-values is not found to be a patentable aspect, since there is a showing and evidence that a very high dispersability is found in the products of Konya, et al., leading to a high n-value.

Regarding impurities, though Konya, et al. does not teach a silica product mostly void of nitrogen and metal oxide impurities, it would be obvious to one of ordinary skill in the art to achieve such a product. Since there is no mention of a significant contribution in the product from impurities, one can assume that the product is fairly pure. In addition, there are known methods for purifying silica powders. Menashi, et al. (US 5063179), for example, teaches a silica with few impurities, and outlines a procedure for getting rid of metal impurities. (col 5, lines 22-47) The fumed silica products disclosed in Menashi, et al. shows good purity. (see Tables II and III) Since well known methods of purification exist for silica, a silica of few impurities is not found patentable over the prior art. One of ordinary skill in the art would be aware of means for purifying their silica product if it became apparent that there were impurities hindering its utility.

Therefore, claims 1-3 are not found patentable over the prior art.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Murota, et al. (US 6,677,095) teaches hydrophobic metal oxide powders, including that of silica, using similar treatment to make the powder hydrophobic as well as achieving similar bulk density to the instant application.

Claims 1-3 have been rejected. No claims have been allowed. Claims 4-7 were withdrawn due to being the non-elected invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIANA J. LIAO whose telephone number is (571)270-3592. The examiner can normally be reached on Monday - Friday 8:00am to 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 4116

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DJL

/Vickie Kim/

Supervisory Patent Examiner, Art Unit 4116